LATCH BLOCK CONTROL FOR MEDIA BAY MODULE

CROSS-REFERENCE TO RELATED APPLICATIONS

The following coassigned patent application is hereby incorporated herein by reference:

Ser. No.	Filing Date	TI Case No.
08/663,499	06/14/96	TI-22954

FIELD OF THE INVENTION

This invention generally relates to devices with a lock controlled by computer software.

BACKGROUND OF THE INVENTION

Although this invention is described in relation to a computer, and specifically a portable computer, it may be implemented into any device that has a lock controlled by a computer software program.

Today, notebook computers may include anything the user may dream of from CD-ROM players to 2 gigabyte hard disk drives, to fully accessoried docking stations. However, in order to reduce the size and weight of the computer, the computer manufacturer must be choose what items the user must have and what items the user can do without in a computer that the size and weight that the user wants.

A method to provide the user the most flexibility and lightest and smallest computer, is to provide a media bay with swapable options. The common options that a media bay may include are floppy drives, hard disk drives, CD-ROM players, magneto-optical drives, and other media. In addition, the operating systems will now allow the user to swap the media bay while the computer is operational. However, this hot-swapable feature is advantageous, as well as very dangerous. Even though the notebook computers may allow the user to remove or insert the media bay module at anytime, it may not be wise to do so. Users may damage the hardware or lose data if the swap is not handled carefully.

SUMMARY OF THE INVENTION

This invention provides a method for the user to change the media bay module when the computer is turned on and not damage the media. In addition, this method will operate with the plug-n-play options of the Microsoft™ Windows™ operating systems. The present invention is controlled by a software program to release the media bay module so that it may be removed and is set each time a media bay module is inserted. However, the present invention will allow ejection of the media bay module whenever the computer is turned off.

The present invention includes a lever that engages the module, a solenoid that controls a pin, and a manual button that moves the lever out of the engaged position. The solenoid moves the pin to block the depression of the manual button when it is on, and moves the pin back when the solenoid is off. Therefore, the module's insertion and removal may be blocked by use of the solenoid. In addition, a software program, or other type of electronic switch, may control turning the solenoid off and on, and thus control the release and insertion of the module.

This is a locking system for a computing device. The system may comprise: a processor connected to a system bus; an input means connected to the processor by the system bus; an output means connected to the processor by the system bus; and a module that inserts into the computing device and is connected to the system bus; and a locking mechanism that locks and releases the module to and from the computing device. The locking mechanism may include: a primary lever which engages the module; a manual button which moves the primary lever and disengages the primary lever from the module; a pin that moves from a blocking position in front of the manual button to a non-blocking position clear of the manual button; and a solenoid that controls movement of the pin. Other devices, systems and methods are also disclosed.

BRIEF DESCRIPTION OF THE DRAWINGS

In the drawings:

FIG. **1** is an isometric view of a portable computer;

FIG. **2** is an exploded view of the base of the portable computer of FIG. **1**;

FIG. **3** is a block diagram of the electronic architecture of the portable computer of FIG. **1**;

FIG. **4** is another block diagram of the electronic architecture of the portable computer of FIG. **1**;

FIG. **5** is a close-up of the base of the portable computer;

FIG. **6** is a close-up of the lock system for the media bay; and

FIG. **7** is a circuit diagram of the solenoid circuit used to control the media bay lock system.

Corresponding numerals and symbols in the different figures refer to corresponding parts unless otherwise indicated.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

FIGS. **1–4** illustrate a portable personnel computer which the present invention could be implemented on. FIGS. **5–7** illustrate details of the present invention.

FIG. **1** illustrates a portable personal computer **100** having a primary display **123**, a base unit **102** and a keyboard **164**. The present invention is ideally suited for the portable computer **100**. The alternate display could include a clear window made of plastic or glass directly above the PCMCIA cards. In addition, the display could include a sliding privacy window, to close the clear window for privacy purposes. However, the alternate display could include an opaque window that slides back to leave an opening to see the PCMCIA card display. Moreover, one possible configuration for the alternate display would display messages in one or two lines, and scroll as needed. However, although FIG. **1** illustrates one embodiment, other embodiments will be discussed later.

FIG. **2** illustrates an exploded view of the base unit **102** of FIG. **1**. Keyboard **164** is attached to top cover **172**. The speaker assemblies **156** and the pick button assembly **113** both attach to the top cover **172**. Moreover, the top printed wiring board **166** and the bottom printed wiring board **168** are attached to the heatplate and printed wiring board assembly **108**. The bus/VGA printed wiring board **170** also attaches to the bottom printed wiring board **168**. The assembly **108** and printed wiring boards **168**, **170** and **166** fit into the base assembly **122**.

The base assembly **122** has a connector door **121** that exposes the connectors for the user's access. The connector